

communication network may further be comprised of one or more transmitters, receivers, relays, base stations, and so forth, depending e.g. upon the implementation and physical separation between communication server **102** and wireless transmission network **104**.

5           Wireless mobile clients **108** are collocated with one another at venue **106** and represent various ones of a class of wireless mobile client devices including, but not limited to wireless mobile phones, palm-top computers such as a personal digital assistant (PDA), two-way pagers, and so forth. Venue **106** is illustrated to represent a stadium equipped to hold tens, hundreds, thousands, or even hundreds of thousands of people or "users" furnished with wireless mobile client devices. In one embodiment of the present invention, participating ones of wireless mobile clients **108**, with support from communication server **102**, display luminescent patterns that cooperatively combine to form an audience assisted luminescent image (hereinafter referred to as a "crowd pattern"). In another embodiment, select ones of wireless mobile clients **108** cooperatively display sequences of synchronized crowd patterns to convey a sense of motion or luminescent animation. For example, a first group of wireless mobile clients **108** in a first location may each display a first luminescent pattern at a time interval  $T_1$  and a second luminescent pattern at a time interval  $T_2$ , whereas a second group of wireless mobile clients **108** in a second location may not display any luminescent image at time  $T_1$ , but may each then display the first luminescent pattern at time  $T_2$ . Thus, by varying the luminescent patterns displayed by a group of wireless mobile clients over time, a sense of motion may be imparted to a crowd or audience.

Crowd patterns may originate from a number of sources both static and dynamic.

For example, a number of pre-programmed crowd patterns (or luminescent patterns) may be stored in one or more wireless mobile clients (e.g. in static memory) for later display in cooperation with additional wireless mobile clients. Alternatively, one or more dynamic sources may be utilized to facilitate generation of one or more crowd patterns.

For example, a video camera could be used in association with communication server 102 to capture image sequences to be displayed as one or more crowd patterns.

Communication server 102 would process sequences of video images received from the video camera and subdivide each image into portions that may then be transmitted as luminescent patterns to individual wireless mobile clients based upon their location.

The devices would then display each respective portion such that the crowd pattern resembles the original video image. Crowd patterns may approximate a wide variety of other visual queues including stage light shows, "screen savers", color organs and so forth.

Each luminescent pattern displayed by a single wireless mobile client essentially forms a constituent portion, or "picture element" of the larger crowd pattern. In one embodiment, wireless mobile clients 108 cooperatively display luminescent patterns via one or more light emitting devices (LED) disposed on or within or connected to each respective wireless mobile client. As used herein, the terms "light emitting device" and "LED" generally refer to a device or component equipped to illuminate to form one or more constituent portions of a luminescent pattern. LEDs may include, but are not limited to devices such as light emitting diodes and components such as backlit displays. In one embodiment, LEDs may include multicolor LEDs to enhance the

variety of patterns and imagery conveyed through the luminescent patterns. The greater the number of wireless mobile clients that participate in displaying a particular crowd pattern, the greater the density and corresponding resolution of the crowd pattern. The lower the number of wireless mobile clients that participate in displaying a particular crowd pattern, the lower the density and corresponding resolution of the crowd pattern. For example, if 10,000 wireless mobile clients each use a backlit display as a light-emitting device in the display of a crowd pattern, the equivalent resolution could be said to be 10,000 picture elements. However, if each wireless mobile client were to contain 10 light emitting diodes as a light-emitting device in the display of a crowd pattern, the equivalent resolution could be said to be 100,000 picture elements. Generally, the greater the resolution, the more realistic an animation or video sequence may appear.

In accordance with one embodiment of the invention, each of the picture elements of the crowd pattern to be displayed correspond to and are determined based upon the associated wireless mobile client's positioning relative to its location within venue **106** or relative to the location of other wireless mobile clients **108**, or both. In one embodiment, select ones of wireless mobile clients **108** each only receive a location-specific luminescent pattern to be cooperatively displayed by the selected wireless mobile clients in association with other wireless mobile clients collocated at venue **106** to visually convey the larger crowd pattern. In an alternative embodiment, wireless mobile clients **108** may receive multiple constituent portions of a given crowd pattern or even an entire crowd pattern (i.e. including luminescent patterns to be displayed by other wireless mobile clients), and determine which constituent portion or portions of the